Publication Digest

In 2020, the ESO community published more than 1000 data papers in a single year for the fourth consecutive time. The total number of data papers included in the ESO Telescope Bibliography (telbib; telbib.eso.org) published between 1996 and 2020 has surpassed 17300. In 2020 alone, more than 600 refereed papers used VLT/VLTI data. Data obtained at ESO's survey telescopes the Visible and Infrared Survey Telescope for Astronomy (VISTA) and the VLT Survey Telescope (VST) led to over 150 papers in 2020, almost half of them (48%) using partly or exclusively archival data, i.e. observations without any overlap between the authors and the team of observers. Facilities located on La Silla once again provided data for approximately 200 papers although during recent years only a reduced set of instruments has been operating under ESO observing time on this site. APEX, in its 15th year of operation, has led to 38 papers deploying data taken during ESO observing time. The

development of ALMA data papers using European data remained rather stable in comparison with the previous year, leading to more than 200 publications. More than a third of all 2020 ESO data papers (382 out of 1074 papers, 36%) used partly or exclusively observations which the authors obtained from the ESO Science Archive.

Publications from different sites

The VLT and the VLTI contributed data to over 600 refereed papers in 2020, confirming the trend observed during recent years that VLT/VLTI data papers have reached a plateau. The three particularly productive instruments MUSE, the Ultraviolet-Visual Echelle Spectrograph (UVES) and X-shooter together provided data for more than half of these papers (336 out of 608, or 55%). In its first year of real paper production, data from ESPRESSO led to 20 science papers.

The number of data papers that deploy data from ESO's survey telescopes, VISTA and VST, continues to increase gently. Almost half of these papers (75 out of 155, or 48%) used archival data. A comparison of papers using data from the five most productive VISTA/VST surveys published between 2010 and 2020 shows a strong increase in papers using data from the Kilo-Degree Survey (KiDS), the ultra-deep near-infrared survey UltraVISTA, and the VISTA Kilo-degree INfrared Galaxy (VIKING) survey during recent years.

Observations obtained with the La Silla telescopes and instruments led to approximately 200 papers. The High Accuracy Radial velocity Planet Searcher (HARPS) clearly dominates in terms of paper production, but even instruments that were decommissioned years ago still contribute to the pool of data papers. An increasing number of telescopes, for instance the MPG/ESO 2.2-metre telescope, the Swiss 1.2-metre Leonhard Euler Telescope, and the Danish 1.54-metre telescope, are hosted but not run by ESO, and their papers are not included in the ESO statistics.

Observations obtained during ESO observing time at APEX contributed to more than half (38 out of 68, or 56%) of the papers from all APEX partners combined, i.e. the Max Planck Institute for Radio Astronomy (MPIfR), the Onsala Space Observatory (OSO), and ESO. The total number of APEX papers since the first science publication in 2006 has surpassed 800.

In 2020 the ALMA user community published more than 440 science papers, of which 48% deployed at least some data obtained during European ALMA time. The ALMA bibliography is maintained jointly by the librarians at ESO and the National Radio Astronomy Observatory (NRAO) in the USA as well as by the National Astronomical Observatory of Japan (NAOJ). Publications based on the data from all ALMA partners are recorded in telbib, but only those based on European observing time are counted in the ESO statistics, unless otherwise noted.

ESO Publications 1996–2020
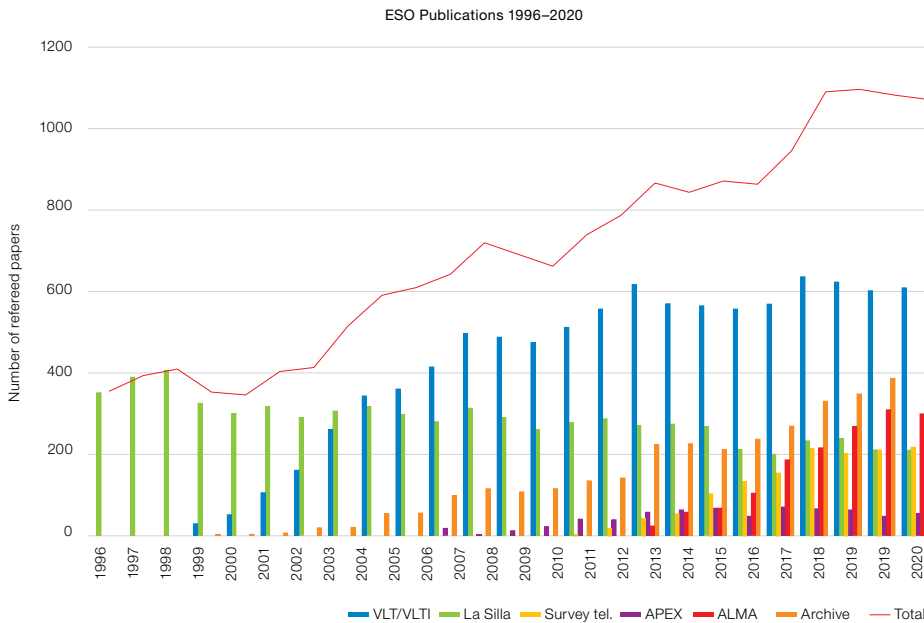
Refereed papers using ESO data, 1996–2020. Some papers use data from more than one facility. VLT/VLTI: papers using data generated by VLT and VLTI instruments, including visitor instruments for which observing time is recommended by the ESO OPC. La Silla: papers using data from La Silla facilities, including visitor instruments for which observing time is recommended by the ESO OPC. Papers based on data from non-ESO telescopes or observations obtained during reserved periods (for example, national allocations of time) are not included. Survey telescopes: papers using data from ESO's survey telescopes VISTA and VST. APEX: papers using APEX data, including visitor instruments for which observing time is recommended by the ESO OPC. ALMA: papers using data generated by ALMA. For APEX and ALMA, only papers based (entirely or partly) on data obtained during ESO time are included. Archive data papers are those without overlap between authors and observers.

The ESO Telescope Bibliography (telbib)

The statistics presented here are derived from telbib, a database of refereed papers published by the ESO user community that links publications with the data in the ESO Science Archive. telbib is curated and developed by the ESO Library and Information Centre. It is compiled by scanning articles published in the major astronomical journals for programme IDs and ESO-related keywords (for example, telescope and instrument names). All telbib papers use partly or exclusively data from ESO facilities. Unless noted otherwise, statistics derived from the telbib database include only papers based on data from telescopes and instruments for which observing time was recommended by the ESO Observing Programmes Committee (OPC). telbib assists the ESO Management with evaluating the Organisation's productivity and impact.

Journals routinely screened for ESO-related keywords are: A&A, A&ARv, AJ, ApJ, ApJS, AN, ARA&A, EM&P, ExA, Icar, MNRAS, Nature, NewA, NewAR, PASJ, PASP, P&SS, and Science. Articles published in other journals are added to telbib upon retrieval. While the Library and Information Centre applies text-mining scripts when screening the literature for ESO data papers, all papers are carefully examined by the curators before they are added to the database. If necessary, authors or ESO staff astronomers are consulted to clarify the use of data and eliminate doubts as much as possible.

The public telbib interface (telbib.eso.org) provides visualisations of search results, including on-the-fly graphs and predefined charts. The underlying data tables of all charts can be downloaded via the web, offering users more flexibility to process data according to their needs. Records included in the telescope bibliography can be reached in many ways. The most obvious access point is the database's front-end at telbib.eso.org. Individual entries are linked to the respective data in the ESO and the ALMA Science Archives; in return, the Science Archives provide direct links to telbib records for all papers that have been published using observations located in the Archives. Similarly, ESO Press Releases link to the telbib records of

Data papers from Top 5 VISTA/VST surveys 2010–2020
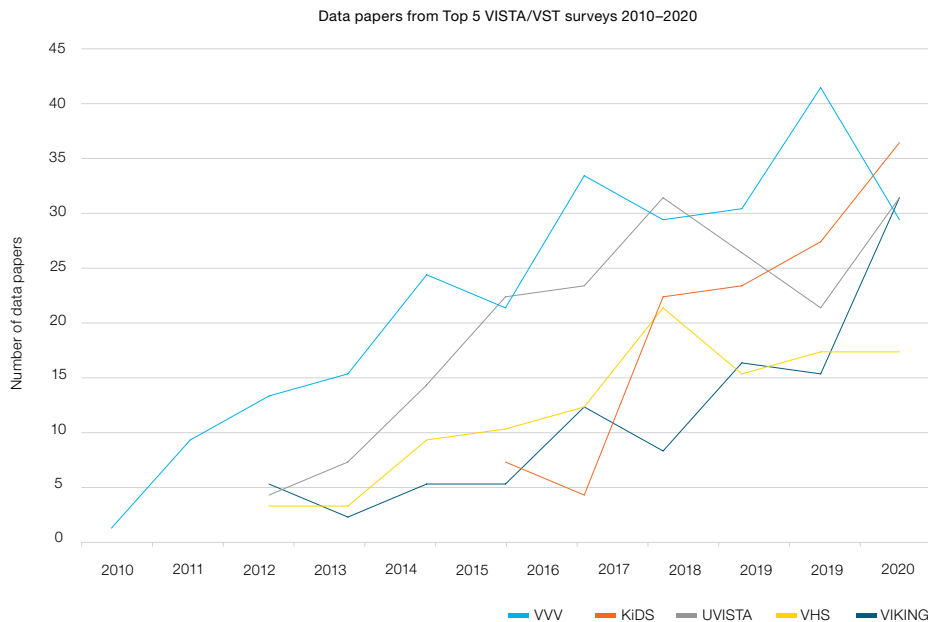
Number of data papers 2010–2020 using observations from the five most productive VISTA or VST surveys.

La Silla Instruments 2010–2020
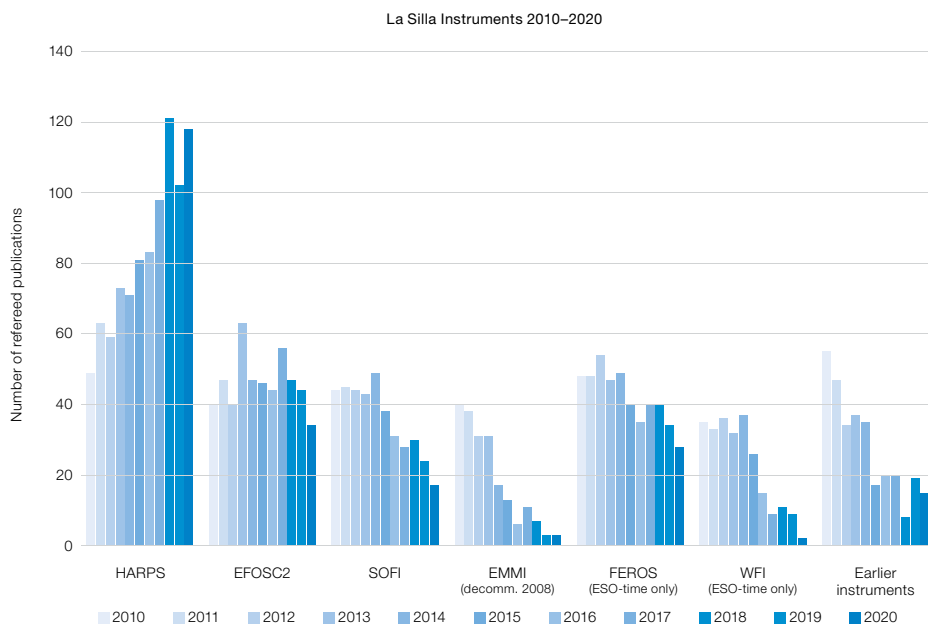
Refereed publications using observations from facilities located at La Silla. Facilities that are hosted but not run by ESO are not included.

featured science papers, and vice versa. ESO's public webpages describing observing facilities provide links to the data papers resulting from the respective instrument.

Details about telbib, including information about the methodology used to screen papers, can be found on the web at http://www.eso.org/sci/libraries/telbib_ info.html. Access to records of all 2020 data papers written by the ESO user community is available at http://telbib. eso.org/ESODataPapers2020.php. A separate listing of refereed publications by ESO scientists with or without use of ESO data can be found at http://www. eso.org/sci/libraries/telbib_ info/AR/ ESOStaffPapers2020.pdf.

A view of the southern Milky Way, showing parts of the constellations of Centaurus, Crux and Carina. In the centre is the Southern Cross, on the left are the bright stars α and β Centauri, and on the right is the Carina Nebula.